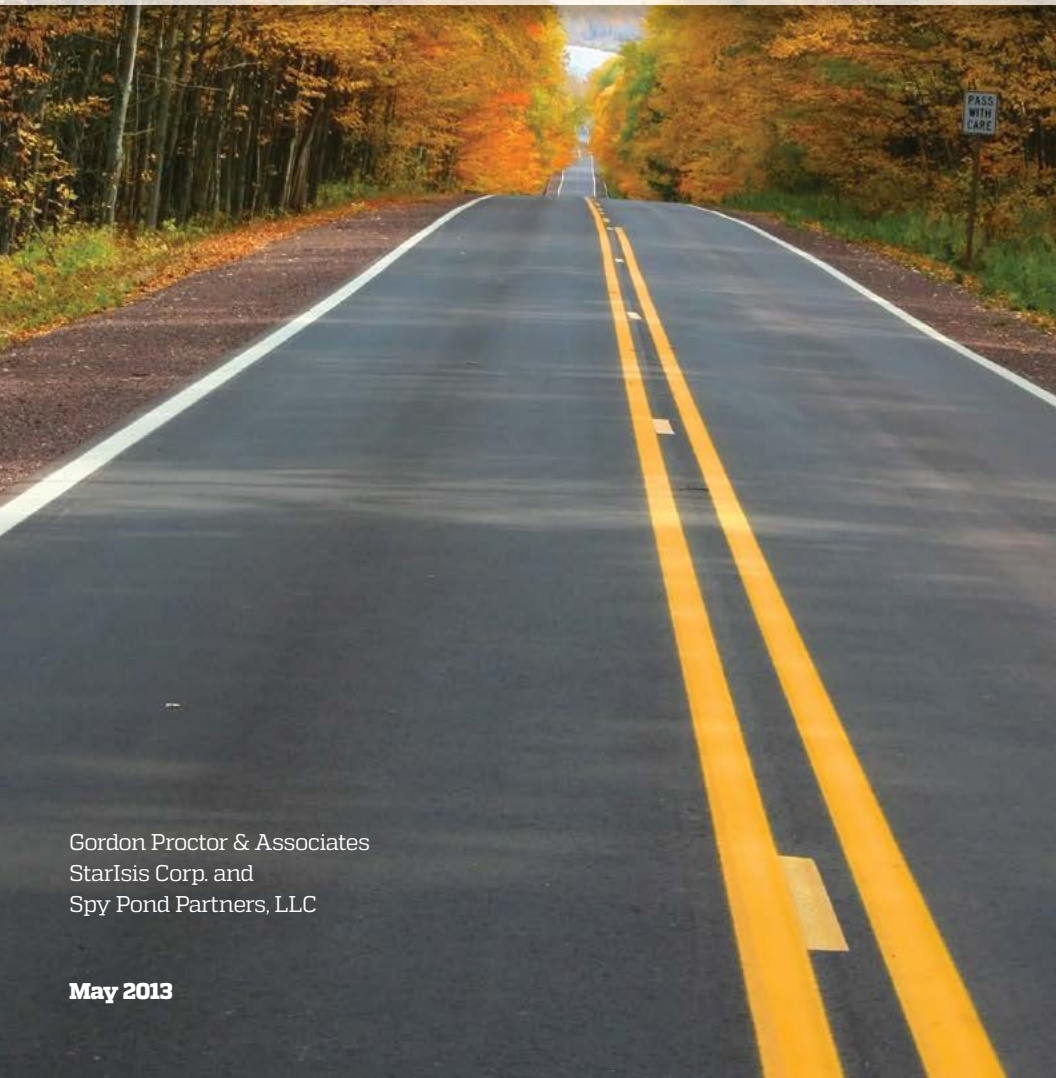


The Road Not Taken

*Michigan's Highway Funding Decisions:
Lessons from the Past and Implications for the Future*



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This report was written by Gordon Proctor & Associates,
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conducted by Spy Pond Partners.

Data came from the Michigan Department of
Transportation but the conclusions are
those of the authors.

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Lessons from Michigan's 1997 Motor Fuel Tax Increase

In 1997, the Michigan Legislature increased the fuel tax by four cents per gallon to improve the state's highway network, which at that time had some of the roughest pavements and most structurally deficient bridges in the country. Now, the Legislature is again considering additional highway investment at a time of declining conditions.

This brochure summarizes a larger report that examines the uses of the 1997 four-cent fuel tax increase and the lessons it holds for today's decision-making.

The report reaches several key findings including:

The 1997 four-cent per gallon increase was inadequate to achieve the state highway bridge and pavement condition targets set by the state transportation commission and also pay for the system-expansion projects pursued by the state between 1997 and 2003.

Because its revenue was inadequate, the Michigan Department of Transportation (MDOT) relied on extensive borrowing and the use of one-time federal economic stimulus funds to augment its bridge and pavement budgets for the past decade.

That borrowing allowed MDOT to improve pavement and bridge conditions substantially from near-worst conditions nationally in 1997. By 2007, the department provided motorists much smoother pavements and stronger bridges.

However, this borrowing just to preserve pavements and bridges over the 15 year period left MDOT with a significant debt that cost it in 2012 nearly \$103 million in principal and interest as seen in Figure 1 (see next page). Total annual debt payments

for all bonds, including those for system-expansion projects and those issued prior to 1997, are about \$220 million annually. MDOT's debt load is near its limit and leaves the department unable to undertake substantial additional borrowing.

With less borrowing, bridge and pavement budgets are declining. Construction prices have risen substantially since 1997, greatly reducing purchasing power. When adjusted for inflation, the projected MDOT pavement budget for 2015 will be smaller than it was in 1997.

If additional investment is not forthcoming, the Michigan trunkline pavements will return to the poor conditions of 1997, and the gain in bridge conditions will begin to reverse. Pavement modeling indicates that by 2018, more than half of the MDOT trunkline miles will have poor pavement conditions.

Bridge forecasts are not as dire, but MDOT bridges are predicted to fall in 10 years below the national mandated condition targets of no more than 10 percent of the bridge deck area on the National Highway System being structurally deficient. These declines are expected to occur despite MDOT adopting some of the most advanced infrastructure-preservation practices in the country.

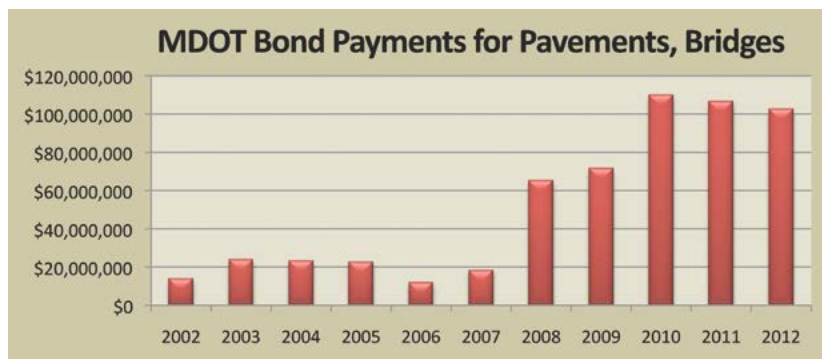


Figure 1. Bond payments for bridge and pavement maintenance soared.

The analysis concludes that instead of a four-cent increase in 1997, a nine cent per gallon increase would have enabled the department to meet the 2007 condition goals without borrowing. A 14 cent per gallon increase would have been needed for MDOT to meet its bridge and pavement condition targets and sustain them to 2012.

As investment decisions are made in 2013, it is clear that substantial new revenue for the preservation of Michigan's basic highway conditions is needed. It also is clear that another modest increase such as 1997's will have only limited impact. To ensure that Michigan has a highway network that is sustainable for the long term will require a substantial investment significantly greater than in 1997. Otherwise, Michigan will be on a path to return to the pot-holed pavements and load-limited bridges of the 1990s.

Michigan 1997: Highways in Decline

In 1997, Michigan's trunkline highway network had among the worst conditions in the nation. Its major bridges were ranked 49th out of the 50 states and nearly a third of its trunkline pavements were in poor condition. More than 6,000 lane miles of highway needed repaved immediately and more than 40 percent of all the trunkline pavements had five or fewer years of good service remaining before they needed repaired. More than 25 percent of the bridges on its major routes had significant structural deficiencies, which was more than twice the national average.

The legislature raised the state motor fuel tax by 4 cents that year to increase investment in the highway network. Although that relatively modest increase resulted in nearly \$2.9 billion in additional revenue between 1997 and 2012, the large majority of it was not available for the basic preservation

of the trunkline's pavements and bridges. Instead, most of the proceeds went to local governments, debt service and routine maintenance as depicted in Figure 2.

The green bar represents the total, cumulative proceeds from 1997-2012 of the 1997 four cent fuel tax increase of \$2.85 billion. Of that, just under half, or \$1.38 billion, went to MDOT under state law. The rest went to local governments. The yellow bar represents what was available for "capital" purposes such as paving, bridge repair or new construction after costs such as bond debt, routine maintenance, and other non-capital costs were covered. The small black and red bars indicate the amount of the four-cent increase that was available to help preserve MDOT's bridges and pavements.

The yellow bar's \$444 million "available for capital" represents only about one-third of MDOT's proceeds from the four-cent increase over the 16-year period of 1997-2012. In other words, only half of the total increase went to MDOT, but only a third

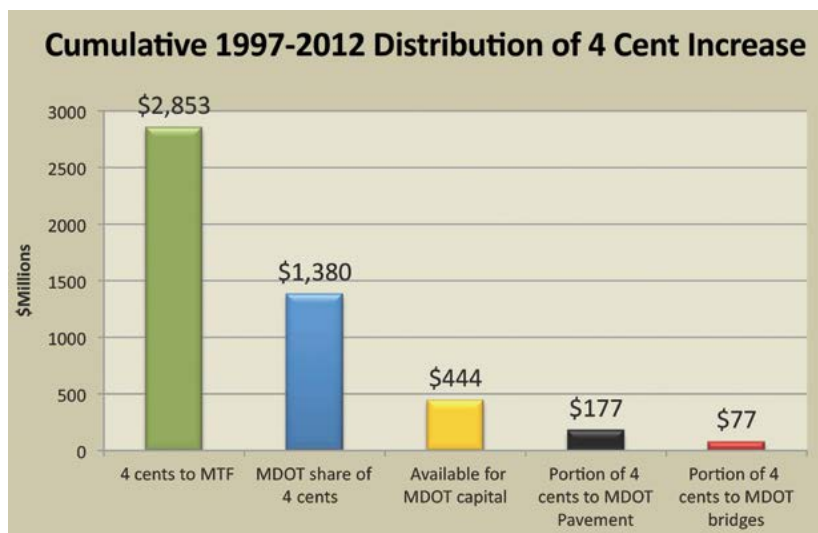


Figure 2. Only a fraction of the 1997 four-cent increase went to basic pavement and bridge maintenance.

of that total was available for capital investment. And of those funds, only 57 percent was available to preserve bridges and pavements. The funds that did not go to capital went primarily to pay for bonds and to fund maintenance such as plowing snow, activities which are not eligible for federal reimbursement.

Between 1997 and 2003, approximately 132 capacity-expansion or improvement projects were constructed for a total approximate cost of \$990 million funded with state, federal and bond revenue. Many of these projects were part of the Build Michigan programs initiated to encourage economic growth. These projects were deemed critical to improve safety, alleviate congestion and to improve the state's economy. As the state's economy struggled with the auto industry's downturn through the 2000s, state leaders believed it to be essential for the state highway network to expand and improve to keep and attract jobs. The pressure to add highway capacity was both short-term and long-term. In the short-term, the new capacity projects created immediate construction and related jobs but they also demonstrated to current employers that Michigan would respond to their needs to keep transportation costs low and allow them to compete globally. For the long-term, the capacity-expansion projects also indicated that the Michigan transportation network would be efficient and competitive for decades and, therefore, the state was a good location for new investment.

The lack of proceeds from the 4-cent increase available for bridge and pavement investment compelled the department to rely on bonding and one-time federal economic-stimulus funds to augment its pavement budgets as seen in figure 3 (see next page).

In years such as 2006, 2007, and 2009, nearly half of the department's pavement program came from bonding or economic stimulus funds. The stimulus funds lasted only two years and are unlikely to be repeated by Congress. The bonds

were available for nearly a decade until the department approached its debt ceiling and its financial ability to repay further bonds. As seen in 2011 and 2012, the amount of bonds diminished substantially in the pavement program. That diminishing of bond revenue foreshadows substantial reductions in the department's pavement and bridge budgets for future years.

Not only are the pavement budgets declining in absolute dollars, but when factored for inflation, they are declining even more substantially in terms of their purchasing power. Construction and material prices rose gradually through the 1990s and mid-2000s but then soared between 2005 and 2008 as seen in Figure 4.

Those increases were driven by global demand for oil, diesel fuel, cement, asphalt concrete, and steel driven by the rapid rise of the economies not only in the United States but also India and China. Although the financial downturn of 2008 reduced prices, for those three years transportation departments lost purchasing power and used up limited bonding capacity. Although prices declined after 2008, they have started to rise again leaving the department with less purchasing power than in 2004.

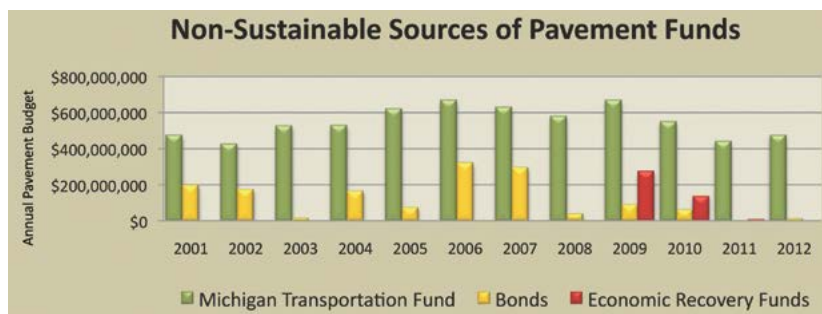


Figure 3. The department was forced to rely on bonds, stimulus funds.

Michigan trunkline pavement conditions are forecast to fall rapidly as the pavement budgets decline. In fact, Figure 5 shows that by 2018 they are forecast to be in worse condition than they were in 1997. Figure 5 shows the dramatic decline predicted by computer modeling for the state's pavements. Although bridge conditions decline more slowly, they are predicted to begin a long, steady slide and by about 2021 they are forecast to be below the national condition target of no more than 10 percent of the bridges on the National Highway System being structurally deficient. (Figure 6, see next page.)



Figure 4. Construction inflation rose rapidly, eroding purchasing power.

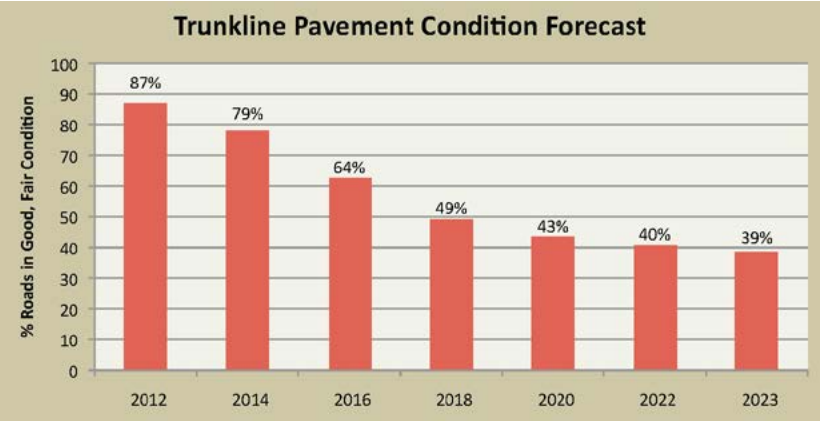


Figure 5. Pavement conditions are forecast to fall sharply.



Figure 6. Bridge conditions are predicted to steadily decline.

The department's pavement conditions peaked in 2009 and have been declining since them. Its commission-established target is to have 95 percent of its freeway pavements in good or fair condition, but actual conditions have declined to 87 percent. Bridge conditions peaked in 2012.

These declines reverse a decade-long trend of improvement. MDOT began in 1997, a long, steady period of improved infrastructure management that focused on replacing the most-deficient bridges and pavements and at the same time preserving those in good or fair condition. MDOT became nationally recognized in the 2000s for its infrastructure-management practices. The department was an early adopter of bridge and pavement preservation approaches that now are recommended by the Federal Highway Administration.

As seen in Figure 7, the amount of poor pavement declined in every part of the state between 1998 and 2009. Instead of nearly a third of the state's trunkline pavements being in poor condition, that number fell by 2009 to about 10 percent statewide.

As seen in Figure 8, the number of structurally deficient bridges in Michigan declined significantly for nearly 16 years. Its national ranking in bridge conditions rose from 49th to

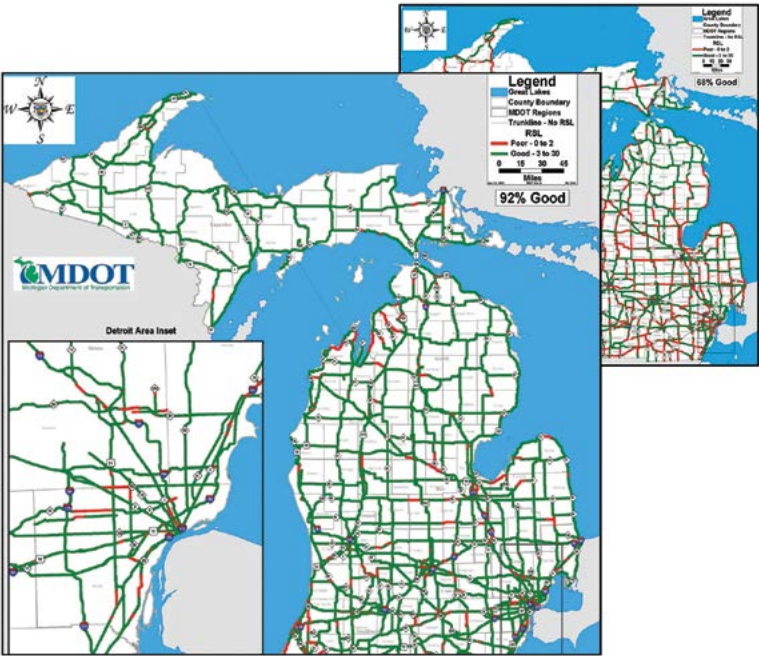


Figure 7. Pavement improved substantially between 1998 and 2009.

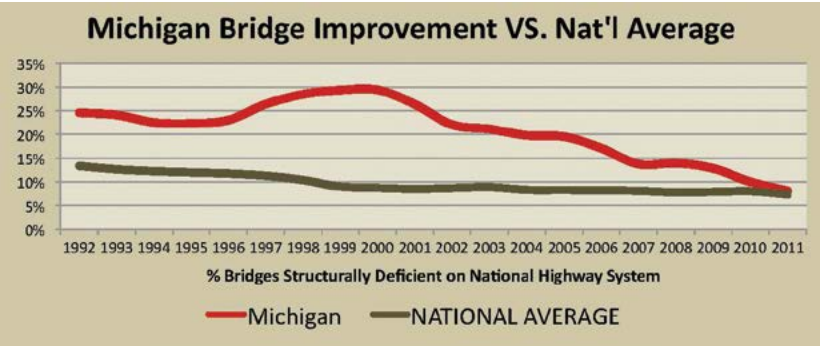


Figure 8. Michigan had made substantial progress on its bridges.

20th, putting it nearly at the national average. In 1997, the department’s bridges were significantly more deteriorated than its peer states such as Indiana, Illinois and Ohio. However, by 2012, it had surpassed many of its peer states and was

widely recognized among highway agencies for its significant improvement in bridge conditions.

However, the department is now on the verge of rapid reversal of this progress. The pace of decline is predicted to accelerate because not only are budgets falling in nominal dollars compared to recent years but are falling even farther when inflation is considered. By 2016, the inflation-adjusted budgets for MDOT's bridge and pavement programs will be less than they were in 1997 as depicted in Figure 9.

The decline in conditions will have an economic impact upon the state because poor pavement conditions are more than just an annoyance. They lead to higher crash rates caused by poor roadway friction that reduces stopping distances and increases run-off-the-road crashes. Poor pavements also decrease fuel economy, increase emissions and increase vehicle repair costs. In a 2012 study by the Transportation Road Information Program (TRIP), it was estimated that even on the better

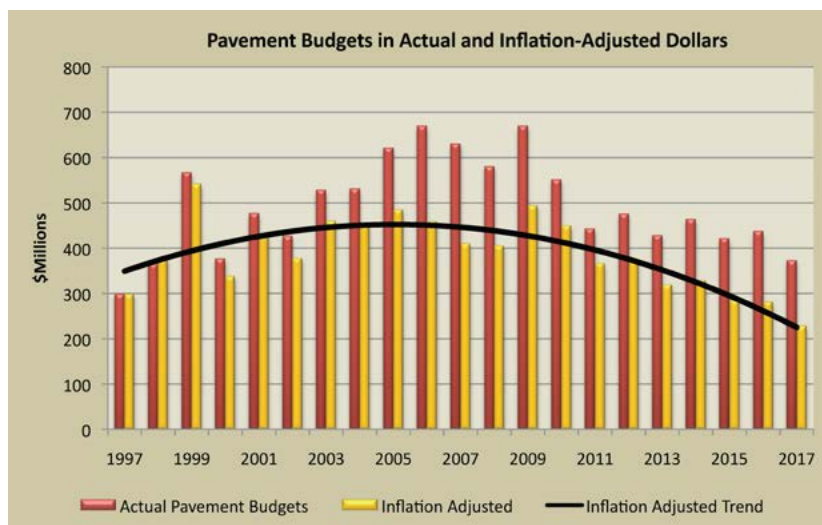


Figure 9. *Inflation-adjusted pavement budgets are near historic lows.*

maintained Michigan roads of 2012, poor pavement cost Michigan residents \$2.5 billion, or \$357 dollars per resident. Those were the highest costs among the Great Lake states.

The decline in pavement and bridge conditions also creates greater long-term costs. It is more expensive to repair and replace a seriously deteriorated bridge or pavement than it is to maintain one in good condition. The reduction in spending “saves” money in the short-term but only increases the longer-term costs to restore assets to a state of good repair.

The Road Not Taken

A recent analysis conducted by a leading national transportation consulting firm concluded that the 4 cent increase in 1997 was only a fraction of the revenue needed to sustain MDOT's trunkline network, considering the division of proceeds to local governments, bond debt, routine maintenance such as snow plowing and paying for capacity-expansion projects.

The analysis indicates that if MDOT were to have achieved its current highway conditions without resorting to borrowing nearly \$1.5 billion, in 1997 it would have needed a nine-cent fuel tax increase instead of a four cent increase. That assumes that the proceeds would have been split with local governments as required by state law. That additional five cents would have resulted in approximately \$1.7 billion in additional revenue to MDOT, not adjusted for inflation back to 1997.

To have met its condition targets and sustained them until 2012, the department would have needed a total 14-cent per gallon fuel tax increase, or 10 cents per gallon more than actually enacted. This higher amount reflects the need for increased investment after 2007 to sustain pavement conditions. In other words, there are two analysis thresholds. To achieve current conditions without borrowing required a nine-cent increase in

1997. To achieve the department's condition targets without borrowing and sustain them until today would have required a 14-cent increase.

Conclusions

In 1997, decision-makers in Michigan invested an additional four cents per gallon of motor fuel tax into the state's highway infrastructure. That amount was enough to build needed expansion projects but it only partially paid for the basic upkeep of the existing pavements and bridges that form the backbone of the state's highway network. To reverse the trends of declining conditions, the state transportation department relied upon bonding and one-time federal stimulus funds to steadily improve conditions since 1997. Since peaking in 2009, pavement conditions have begun to decline again because of inadequate investment, higher construction prices, aging infrastructure and increased traffic volumes.

An analysis of the 16 years between 1997 and 2012 clearly reveal several important factors to be considered as decision-makers discuss future funding decisions:

- Without substantial new investment, the Michigan state highway conditions will degrade rapidly and many of the gains of the past 16 years will be lost.
- The modest increase of 1997 was not nearly adequate to cover the costs of both system preservation and system expansion.
- The amount of debt incurred in the past decade creates a costly burden that today diminishes the amount of revenue that can be devoted to sustaining basic highway conditions.
- Additional borrowing and federal bailouts are unlikely to provide simple solutions.

